

**ABSTRACT**

A method for simultaneously operating multiple seismic vibrators using continuous sweeps (little or no "listening" time between sweeps) for each vibrator, and recovering the separated seismic responses for each vibrator with the earth signature removed. Each vibrator is given a unique, continuous pilot signal. The earth response to the motion of each vibrator is measured or estimated. The vibrator motion records for each vibrator and the combined seismic data record for all the vibrators are parsed into separate shorter records. The shorter records are then used to form a system of simultaneous linear equations in the Fourier transform domain, following the HFVS method of Sallas and Allen. The equations are then solved for the separated earth responses.